

# SUPERCONDUCTING DIGITAL FIFO BUFFER USING PHYSICAL BACK-PRESSURE MECHANISM

## ABSTRACT OF THE DISCLOSURE

A digital first-in first-out (FIFO) buffer (10) for use with Single Flux Quantum (SFQ) superconductive integrated circuits. The digital FIFO buffer (10) includes a clock-storage circuit (14) for receiving and storing load and read clock signals (100, 104) and a data-storage circuit (16) connected to the clock-storage circuit (14) for receiving and storing data signal pulses (102) in the order which the data signal pulses (102) are received relative to the load clock signal (100). The data-storage circuit (16) outputs the SFQ pulse signal independent of the load clock signal (100). The previously stored clock and data signal pulses (100, 102) provide physical back pressure to their subsequent signal pulses.